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L4: Entry 9 of 16

File: USPT

Nov 2, 1999

US-PAT-NO: 5978805

DOCUMENT-IDENTIFIER: US 5978805 A

TITLE: Method and apparatus for synchronizing files

DATE-ISSUED: November 2, 1999

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-------------------|----------|-------|----------|---------|
| Carson; Dwayne A. | Brockton | MA | | |

US-CL-CURRENT: 707/10; 707/202, 707/204, 707/205

ABSTRACT:

A method and apparatus is disclosed for synchronizing files stored in memory of two remotely located systems. The system can generate a copy of a source file at the destination location without transferring all the data of the source file. The destination location includes a reference file that can contain similar data as that contained in the source file. The synchronization is accomplished by sending keys (representing reference blocks of data from the reference file) to the source system. At the source system, a portion of each keys called a Feature is compared with portions of source file. If the Features match, a checksum corresponding to the reference block is compared with a check sum corresponding to the source block. If the checksums match, an short message identifying the key and reference block that matched is transmitted to the destination system in order that the reference block can be copied from the reference file in order to build the synchronized file.

21 Claims, 14 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 14

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L4: Entry 6 of 16

File: USPT

May 29, 2001

US-PAT-NO: 6240452

DOCUMENT-IDENTIFIER: US 6240452 B1

TITLE: Method and apparatus for monitoring file transfers and logical connections in a computer database featuring a file transfer record database

DATE-ISSUED: May 29, 2001

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------------------------|----------------|-------|----------|---------|
| Welch, Jr.; Frank K. | Salt Lake City | UT | | |
| Thomas; Christopher S. | Orem | UT | | |
| Sternberg; Jay E. | Glendale | AZ | | |
| Baggleman; Thomas M. | Phoenix | AZ | | |

US-CL-CURRENT: 709/224; 709/223, 709/238, 709/240, 709/241, 709/242

ABSTRACT:

A method of monitoring logical connections in a computer network is described. All packets exchanged via the network are intercepted and analyzed. Upon receipt of a packet, a connection management engine determines whether packet is part of an existing logical connection. If it is not, a new record is created and stored in a connection record database. Otherwise, the existing record for the logical connection in the connection record database is updated.

Also described is a method of monitoring file transfers in a computer network. File transfers are monitored using an file transfer record database, which allows each packet of the file transfer to be placed in proper context. Upon interception of a packet, an application management engine (AME) first determines whether the packet is part of a file transfer. If it is not, the AME ignores the packet. On the other hand, if the packet is part of a file transfer, then the AME determines whether if the packet is part of a new file transfer or a one of a multiplicity of existing file transfers. The AME creates a new record if the packet is the start of a new file transfer. If the packet is part of an existing file transfer, then the AME searches the file transfer record database to locate the record for the file transfer, which the packet is part of. Once located, the record is updated.

Apparatus for monitoring file transfers and logical connections are also described.

12 Claims, 9 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 9